


# Digital Innovation Ecosystem on Digital Entrepreneur: Social Network Analysis Approach

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## ABSTRACT

This study aims to produce a network structure in the digital innovation ecosystem to determine the position of each actor involved in it as an effort to support digital innovation in digital startups in West Java. This study uses a mixed method with an exploratory sequential strategy involving digital startup actors in West Java. To get the network structure in the digital innovation ecosystem in order to find out the actors who play the most important roles, the research uses a social network analysis approach by utilizing the Gephi application. The network structure is based on four dimensions of centrality. The results of this study confirm that the actor with the most connections (degree centrality), as well as the most important actor (Eigen centrality), in the digital innovation ecosystem in West Java is PT. Sharing Vision. A framework of digital innovation ecosystem is developed to explain the importance of actor positions in the digital innovation ecosystem.

## KEYWORDS

Digital Entrepreneur, Digital Innovation, Digital Innovation Ecosystem, Digital Startups, Social Network Analysis

## INTRODUCTION

Digital technology marks a new era in entrepreneurship (Azzahra et al., 2021), which can expand various entrepreneurial opportunities and challenge business owners and their companies to digitize immediately (Beliaeva et al., 2020). Digital technology is a driver of entrepreneurial activity (von Briel et al., 2018) and manifests itself in various forms as one of them is digital innovations (Kuester et al., 2018; Elia et al., 2020; Purbasari et al., 2021). Digitalization has set the stage for innovations that have the potential to trigger new technological revolutions (Deng et al., 2020) and encourage the emergence of multi-sided platforms (Purbasari et al., 2021) inhabited by digital entrepreneurs (Sussan & Acs, 2017; Purbasari et al., 2021). Digital entrepreneurs identify and take advantage of

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various business opportunities based on the Internet, the World Wide Web, mobile technology, digital media, cloud computing, big data, robotics, and other information and communication technologies (Richter et al., 2017; Ulas, 2019). Due to the various possibilities available from advances in digital technology, digital entrepreneurs have been considered an essential pillar for economic growth and innovation and have become one of the top priorities in many countries (Shen et al., 2018; Beliaeva et al., 2020; Bagale et al., 2021).

In recent years, digital entrepreneurship has attracted much research interest as a new and developing research field (Kraus et al., 2019; Beliaeva et al., 2020). Digital entrepreneurship broadly refers to creating new ventures and transforming existing businesses by developing new digital technologies and new uses of those technologies (Sahut et al., 2019; Elia et al., 2020). In addition, digital entrepreneurship is also recognized as an important driver in the innovation system (Perwita, 2021). It can also be said that digital entrepreneurship is the process of creating a digital startup as a new business or within an established company (Perwita, 2021; Muafi et al., 2021). A *startup* can be understood as a company in the early stages of its business operations. Startups try to enter existing markets or sometimes open new ones with innovative products or services (Riyanto & Jamaaluddin, 2018).

More companies, including digital startups, have used digital technology to create digital innovations in terms of offering new products and services that provide significant benefits to the economy (Soto-Acosta, 2020). However, digital startups cannot develop innovations separately because the innovation process is complex and non-linear (Walrave et al., 2018; Wagemans & Witschge, 2019). As a nascent technology venture, digital startups rely heavily on external actors to enhance their innovation capabilities (Fukugawa, 2018; Ojaghi et al., 2019; Marcon & Ribeiro, 2021). The size and limited resources of digital startups make them more vulnerable to forming strong bonds with different actors that help them overcome internal shortcomings and create shared value (van Rijnssoever, 2020; Marcon & Ribeiro, 2021). Many digital startups protect their knowledge of using intellectual property (IP) and patents through several open innovation relationships (Yuana et al., 2021), indicating that innovation has progressed beyond the boundaries of single firms towards a more network-based approach (Klimanov & Tretyak, 2019; Iovanella et al., 2019), which consists of many actors with various categories of stakeholders (Reypens et al., 2019; Bittencourt et al., 2021). Companies create value from their activities and interactions with stakeholders in interdependent relationships within their ecosystems, as innovation and digital technology are also interdependent in the so-called innovation ecosystem (Suseno et al., 2018; Benitez et al., 2020; Wang, 2021). The emergence of the interconnectedness of digital startups and the innovation ecosystem lead to a potentially important new context for entrepreneurship (von Briel et al., 2018; Nambisan et al., 2019), which is from now on called the *digital innovation ecosystem* concept.

The concept of a digital innovation ecosystem has become one of the focus concepts used in several recent studies where digital product and service innovation is recognized as a process of reconfiguration or recombination of existing resources available in the ecosystem (Kahre et al., 2017; Chae, 2019; Øvrelid & Kempton, 2020). In much the same way, the digital innovation ecosystem models the interactions and relationships between companies and stakeholders in creating new products and services using digital technologies to create value (Suseno et al., 2018; Wang, 2021). The digital innovation ecosystem is considered an analytical framework built on the more networked nature of digital entrepreneurs. It adopts a holistic and multilevel view by analyzing it within the entire innovation ecosystem (Beliaeva et al., 2020). The digital innovation ecosystem is a dynamic collection of interdependent actors and the resources they use to innovate with digital technology (Wang, 2021). It consists of components such as business actors, customers, suppliers, and complements (other business actors, government, universities, banks, investors, social communities, and information media; Chae, 2019; Beltagui et al., 2020; Elia et al., 2020; Beliaeva et al., 2020).

Both scholars and policymakers recognize the need for a supportive ecosystem for digital entrepreneurs, but current studies do not sufficiently explore which elements are most important for nurturing and shaping digital entrepreneurs at various stages of development (Elia et al., 2020;

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